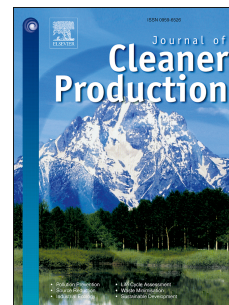


Journal Pre-proof

Management research and the UN Sustainable Development Goals (SDGs): a bibliometric investigation and systematic review

Simone Pizzi, Andrea Caputo, Antonello Corvino, Andrea Venturelli



PII: S0959-6526(20)34078-6

DOI: <https://doi.org/10.1016/j.jclepro.2020.124033>

Reference: JCLP 124033

To appear in: *Journal of Cleaner Production*

Received Date: 30 November 2019

Revised Date: 22 May 2020

Accepted Date: 29 August 2020

Please cite this article as: Pizzi S, Caputo A, Corvino A, Venturelli A, Management research and the UN Sustainable Development Goals (SDGs): a bibliometric investigation and systematic review, *Journal of Cleaner Production*, <https://doi.org/10.1016/j.jclepro.2020.124033>.

This is a PDF file of an article that has undergone enhancements after acceptance, such as the addition of a cover page and metadata, and formatting for readability, but it is not yet the definitive version of record. This version will undergo additional copyediting, typesetting and review before it is published in its final form, but we are providing this version to give early visibility of the article. Please note that, during the production process, errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

© 2020 Elsevier Ltd. All rights reserved.

CRediT author statement

Simone Pizzi: Formal Analysis; Investigation; Writing - Review & Editing.

Andrea Caputo: Methodology; Validation; Formal Analysis; Investigation; Writing - Review & Editing. **Antonello Corvino:** Writing - Review & Editing. **Andrea Venturelli:** Writing - Review & Editing.

**Corporate contribution to Sustainable Development Goals:
A Knowledge Map of the first five years**

Abstract

This paper investigates the contribution provided by business and management scholars on SDGs debate. A bibliometric and systematic literature review method was employed and analysed in 266 articles published between 2012 and 2019. The results reveal the existence of four themes of research: technological innovation (cluster 1); firms' contribution in developing countries (cluster 2); non-financial reporting (cluster 3) and education for SDGs (cluster 4). Main insights from the analysis of the papers are discussed and future research directions for the field are provided.

Keywords: SDGs, literature review, bibliometric, strategy, VOSViewer, sustainability

Authors details

1. Simone Pizzi, Università del Salento, Italy
2. Andrea Caputo, University of Lincoln, United Kingdom
3. Antonello Corvino, University of Foggia, Italy
4. Andrea Venturelli, Università del Salento, Italy

Corresponding author details: Andrea Caputo, University of Lincoln, Brayford Pool, LN67TS, Lincoln, United Kingdom, acaputo@lincoln.ac.uk, +44 01522 835621

Management research and the UN Sustainable Development Goals (SDGs): a bibliometric investigation and systematic review

Abstract

The comprehension of the businesses' impact to sustainable development requires consideration of the different factors that affect firms' behavior, such as corporate governance, non-financial regulation, and the external environment. The contribution of business and management scholars to the discussion surrounding the Sustainable Development Goals (SDGs) and their impact for business organizations has grown exponentially in the last years. This review systematically examines, through bibliometric and systematic literature review methods, the scientific knowledge about SDGs and the business sector, analyzing (after fine-tuning) 266 articles published in leading journals between 2012 and 2019. The results reveal the existence of four research themes: technological innovation (cluster 1), firms' contributions in developing countries (cluster 2), non-financial reporting (cluster 3), and education for SDGs (cluster 4). The main insights from the analysis of the papers are discussed, future research directions and practical implications for the field of study are provided.

Keywords: SDGs, literature review, bibliometric, strategy, VOSViewer, sustainability

1. Introduction

The concept of sustainable development has been widely analyzed by policymakers in recent years (Sneddon, Howarth, & Norgaard, 2006). It has only become more relevant with the increasing need to identify new strategies in order to achieve the highest degree of worldwide sustainability, which increased the attention paid by stakeholders in encouraging the

achievement of socio-environmental goals. In that vein, the main initiative introduced by policymakers to encourage socio-environmental sustainability is the United Nations' 2030 Agenda. The 2030 Agenda represents an agreement between all 193 UN Member States to introduce a set of common strategies to achieve 17 goals (the Sustainable Development Goals, or SDGs) and 169 targets before the year 2030.

The SDGs follow from the Millennium Development Goals (MDGs), which represented the first attempt to create strategies to ease the development of the poorest countries. However, the MDGs have been criticized for their inadequate results, caused by the inequality states. To avoid a similar shortfall, the SDGs' introduction has been followed by an *ex-ante* evaluation to identify possible innovations that will make their achievement more likely (Sachs, 2012). One of the identified measures has been the direct involvement of the business sector. Yet, the business sector response to this call to action is negatively influenced by the different attitudes towards sustainability (Le Blanc, 2015). In fact, full comprehension of the business sector's contribution to sustainable development requires consideration of the different factors that affect firms' behaviours, such as corporate governance, non-financial regulation, and the external environment (Lombardi, Trequattrini, Cuzzo, & Cano-Rubio, 2019; Pizzi, Caputo, & Venturelli, 2020). Moreover, the inclusion of developed countries in the 2030 Agenda makes it more difficult to develop an effective common strategy due to the different stakeholders' expectations about organizations' activities (Scheyvens, Banks, & Hughes, 2016). In fact, as revealed in prior surveys about the integration of SDGs within firms' non-financial reports, firms pay varying degrees of attention to and place different priority on different goals (GBS, 2019; PWC, 2018).

The comprehension of the contribution provided by business enterprises to the SDGs represents a complex effort. The complexity is related to the central role covered by them

within the society where they operate (Kolk, Kourula, & Pisani, 2017). In fact, despite the achievement of the SDGs is evaluated at country-level, the business sector represents one of the main critical success factor for their achievement (Sachs, 2012). Furthermore, the complexity of the topic has been underlined by Schaltegger (2018), who highlighted that the interconnections between SDGs impact negatively on the possibility to develop a theoretical framework useful to evaluate firms' approach toward the SDGs. The SDGs represents a research area that requires the development of evidence-based studies in order to understand the main strengths and weakness that influence firms' behaviours. In this sense, despite the policy makers' scepticism regarding the involvement of business and management scholars in regulation's activities, of policy makers (Garcia-Torea, Larrinaga, & Luque-Vílchez, 2019), during recent years an increasing number of academics have started to analyse firms' contribution to SDGs. The contribution of those scholars has been favoured by the increasing attention paid to the topics related to the corporate social responsibility. Furthermore, several authors have launched special issue related to the SDGs in order to encourage the development of new studies based on a managerial perspective (Bebbington & Unerman, 2018; Guthrie, Parker, Dumay, & Milne, 2019).

The aim of the paper is to systematize the scientific knowledge created through the debate from business and management scholars. In details, according to Gaziulusoy and Boyle (2013) the systematization of the literature that regards transdisciplinary topics such as the SDGs represent a useful tool for researchers to develop new research enquiry. For our purposes, we have followed a methodological approach based on bibliometric investigation and systematic literature review of the topic (Dabić et al., 2019). The choice to based our analysis on the combination of the two methods has been driven by the opportunity to identify the primary debates that characterize SDGs in business and management journals.

The paper is structured as follows: Section 2 consists of a description of the methodological approach adopted by the authors; Section 3 describes the results collected through the bibliometric analysis; Section 4 presents a literature review about the state of the art of the research ; Section 5 provides an interpretation of the output collected and opportunity areas for future research. Lastly, Section 6 portrays the policy implications related to this research.

2. Methodology

This study's aim is to map the knowledge generated by management scholars who investigate the role of businesses, corporations, and for-profit organizations in contributing to the SDGs. In according to mapping of the best practices in scientific knowledge, a bibliometric analysis of the literature, also adopting a systematic literature review method, has been performed (Caputo, Marzi, Pellegrini, & Rialti, 2018; Dabić et al., 2019). In combination, these two complementary methods paint a picture of the evolution of scientific knowledge in a field, through quantitative bibliometric tools, while providing an in-depth investigation of topics and contents through the qualitative systematic review. In line with the systematic review method (Giertsen, 1995; Tranfield, Denyer, & Smart, 2003), a panel of experts was formed to define the field of research, choose keywords and the database, and establish the sets of inclusion and exclusion criteria.

2.1 Methodology adopted in the systematic literature review

We performed a systematic search through the Scopus database during October 2019, with the criteria detailed further in this section. The maximum time limit allowed by the database was chosen to avoid distortion of the results; the first article found was published in 2012 and the last in 2019. This period enables consideration of not only the research carried out post-introduction of the SDGs, but also the scholarly reflections that influenced their framework after the Rio Conference in 2012 (Sachs, 2012; van Vuuren et al., 2015). Our methodological

approach followed the research strategy adopted in prior studies evaluating the contribution provided by business and management scholars to discussion of the SDGs (Kolk et al., 2017). The Scopus database was used allow for the consideration of all possible works published in a broader range of journals, which limited the risks, biases, and potential omissions of using a narrower set of journals. Cross-validation performed with Web of Science and EBSCO Business Premier confirmed the appropriateness of the Scopus database for the topic of inquiry.

The Scopus search was done to retrieve articles whose titles, abstracts and keywords contained either the word “*sdg**” or “*sustainable development goal**”. Further filters included searching in the Business, Management, and Accounting subset of the database, to ensure consistency with the subject area, and searching peer-reviewed English-only journal articles, removing articles in press in 2020. This search retrieved an initial sample of 415 documents, a size consistent with other bibliometric studies in the management field (Caputo et al., 2018; Sassetti, Marzi, Cavaliere, & Ciappei, 2018).

Given that publications concerning the SDGs are multidisciplinary and may have practical, rather than theoretical, relevance, to ensure adherence with our research question, a filtering process was carried out that consisted of independent reading of abstracts by all this paper’s authors. After this process, 149 articles were excluded from the analysis either because they were out of the scope of the present study (for instance, in chemistry SDG stands for *phenolic secoisolariciresinol diglucoside*) or because they addressed other research topics not (directly) related to the business and management field (such as the papers related to phenomena like the reporting of citizens’ socio-demographic information).

The final set of 266 papers was then used for the bibliometric analysis and the systematic review. During this phase, adjustments were made to address errors and inconsistencies in the database, for example, homogenizing the authors' keywords spelling.

The next steps consisted of reading each article and conducting qualitative analysis consistently with best practices in systematic literature reviews (Barclay, Momen, Case-Upton, Kuhn, & Smith, 2011; Pittaway & Cope, 2007). Each article was coded, tagged, and later grouped into clusters, with articles allowed to be part of more than one cluster (Giertsen, 1995; Tranfield et al., 2003). Concerning the coding and tagging procedure, relevant parts of the text were selected and tagged with keywords representing their content, contributing dynamically to the development of the final taxonomy while allowing flexibility in categorizing information with new tags, therefore reducing biases that can arise from a rigidly pre-set system (Caputo, Pellegrini, Dabic, & Dana, 2016). The approach was similar to that adopted by prior studies (Guthrie, Ricceri, & Dumay, 2012). The resulting taxonomy (shown in Table 1) consisted of six levels of analysis describing: a) the jurisdiction, b) the organizational focus, c) the geographical location, d) the focus on SDGs literature, e) the research methods followed, and f) the theoretical framework adopted or proposed within the studies.

Please Insert Table 1

2.2 Methodology adopted in the bibliometric analysis

Bibliometrics applies statistical methods to the study of the scientific activity in a field of research (Zupic & Čater, 2015). It combines two main procedures: performance analysis and science mapping. The performance analysis is based on activity indicators, which provide data about the volume and impact of research through the use of a wide range of techniques, including word frequency analysis, citation analysis, and counting publications by a unit of

analysis (e.g., authorship, country, affiliation, etc.). On the other hand, science mapping is based on first and second-generation relation indicators that provide a spatial representation of how different scientific elements are related to one another. The objective of science mapping is to show the structural and dynamic organization of knowledge in the field of research. To overcome the limitations that pertain to every synthetic indicator, prior studies have argued for the use of more than one indicator (Marzi, Dabić, Daim, & Garces, 2017). Notably, we used co-citation, bibliographic coupling, and co-occurrence of keywords as indicators for our analysis. Co-citation analysis allowed us to investigate when two articles are both independently cited by one or more articles, while bibliographic coupling takes place when two articles both cite a third article, indicating a probability that the two articles discuss a common topic (Ferreira, 2018). Co-occurrence of keywords analysis uses the author's provided keywords to investigate the conceptual structure of the field.

As the tool to calculate these indicators, we used the software program VOSViewer (van Eck & Waltman, 2010). The graphs represent a network of elements through circles, whose size varies according to the importance of the element, while the network connections represent the closeness of the link between elements. The spatial position of the circles and different colors are used to cluster the items.

3. Results of bibliometric analysis

The bibliometric analysis has revealed how business and management academics have provided valuable insights to the debates over policies regarding the macro themes of sustainable development, in particular, contributing to discussions of the SDGs in recent years (Bebbington, 2013; Garcia-Torea et al., 2019)

3.1 Activity indicators

Our result highlighted how quickly the amount of attention academics paid to the SDGs increased during the period 2012-2019 (Figure 1). Specifically, the analysis reveals how each year since 2012, the number of papers published by academics about SDGs has been higher than the year before. The exponential growth that characterizes the field suggests the existence of increasing debate in management studies about firms' role in the SDGs' achievement.

Please Insert Figure 1 - publication by year

During the period analyzed, 120 journals published at least one paper about the SDGs, while 76 journals received at least one citation. The average number of citations for an article was 8.27 (S.D. 14.90). These numbers confirm how the research in this field is producing a good impact despite its novelty and the apparent concentration of impact in a few journals. The most cited journal is the *Journal of Cleaner Production*, followed by the *International Journal of Management Education* and the *Journal of Purchasing and Supply Management* (Table 2). We have also investigated the rank of the journals where SDG research is published, adopting the ABS ranking, which is one of the most highly regarded rankings in business and management studies. We have also considered the impact factor of each journal. The analysis reveals that the ABS ranking lists 80% of the 20 top journals, while an impact factor is provided for only 60% of them. Furthermore, only one 4* journal is represented in our list. Our results highlight how a large portion of the contributions is provided by emerging journals widely adopted by management scholars.

Please Insert Table 2

Our research collected 1,374 citations of papers on the SDGs (Table 3). The weight of the 10 papers with the highest number of citations is equal to 40.32. This evidence suggests these

papers play a central role within the overall debate about SDGs. Moreover, these 10 papers are highly multidisciplinary.

Please Insert Table 3

The dataset included 705 authors for the 266 publications. Out of these, only 40 had authored at least 2 publications, and 28 authors were cited more than 50 times (Table 4).

Please Insert Table 4

3.2 Co-citation analysis

A co-citation analysis occurs when several articles cite the same articles. This measure is seen as an indication that the content of the co-citing articles is related in a meaningful way. This subsection presents co-citation analyses of articles, journals, and authors.

3.2.1 Articles

When analyzing the 266 articles included in our dataset, and a minimum threshold of 3 citations is considered, the obtained set contains 31 cited references out of the 15.956 total. Furthermore, the five most connected references (Figure 2) are:

- Le Blanc, D. (2015). Towards integration at last? The sustainable development goals as a network of targets. *Sustainable Development*, 23(3), 176-187.
- Bocken, N. M., Short, S. W., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, 65, 42-56.
- Scheyvens, R., Banks, G., & Hughes, E. (2016). The private sector and the SDGs: The need to move beyond 'business as usual'. *Sustainable Development*, 24(6), 371-382.

- Jamal, T., & Camargo, B. A. (2014). Sustainable tourism, justice and an ethic of care: Toward the just destination. *Journal of Sustainable Tourism*, 22(1), 11-30.
- Sachs, J. D. (2012). From millennium development goals to sustainable development goals. *The Lancet*, 379(9832), 2206-2211.

The density analysis is represented in Figure 2. As can be seen in this graph, the papers with the highest coupling strengths are those by Le Blanc (2015) and Scheyvens (2016). These papers are central because of their specific attention to firms' contributions to SDGs and by their novelty. Le Blanc (2015) described the necessity of integrating the SDGs within firms' strategies, while Scheyvens et al. (2016) tried to identify an operation framework for the private sector's active contribution to the SDGs.

Please Insert Figure 2 - Density diagram of the largest connected sets of cited references

3.2.2 Journals

Out of the 7,045 cited sources, 24 journals each received more than 40 citations. The top 5 journals with the highest numbers of citations are: *Journal of Cleaner Production* (691), *Journal of Business Ethics* (274), *Journal of Sustainable Tourism* (151), *Tourism Management* (111) and *Annals of Tourism Research* (109) (Figure 3). These numbers make it evident how much of the discussion of the SDGs is supported by papers published in *Journal of Cleaner Production*. However, density analysis provided further interesting insights. It suggests the existence of three different clusters, regarding the managerial implications related to production, managerial behaviors, and tourism management. The specific cluster about tourism management could exist because of the particular ways this sector contributes to sustainable development.

Please Insert Figure 3 - Density diagram of the largest connected sets of cited sources by
journal

3.2.3 Authors

Out of the 21,321 cited authors, only 24 had been cited more than 20 times. Furthermore, only four authors were cited more than 40 times. These authors are: Hall (Department of Management, Marketing and Entrepreneurship, University of Canterbury, New Zealand), Schaltegger (Centre for Sustainability Management (CSM), Leuphana University Lüneburg, Germany), Rockstrom (Stockholm Resilience, Stockholm University, Sweden), and Gössling (Western Norway Research Institute, Norway).

Figure 4 shows the density diagram of the author co-citation analysis. It shows how these authors are not only the most cited but also the most connected according to the co-citation analysis. The density analysis pointed out the existence of three different clusters. Two of these are characterized by a high degree of bibliographic coupling, while the third cluster shows a middle degree of bibliographic coupling. The cluster with the highest bibliographic coupling includes work by several accounting scholars, such as Jan Bebbington (University of Birmingham, UK) and Ans Kolk (University of Amsterdam, Netherlands). In particular, the central role of Bebbington could be attributed to her crucial position in the debate based on the contribution of accounting scholars to SDGs (Bebbington and Unerman, 2018).

Please Insert Figure 4 - Density diagram of the largest connected sets of cited sources by authors

3.3 Bibliographic coupling

Bibliographic coupling analyses the extent to which two articles are related by measuring their references to a third article. This subsection presents bibliographic coupling analyses of articles, journals, and authors.

3.3.1 Articles

The bibliographic coupling of the 266 articles in our dataset can be helpful to better understand the theoretical foundations of these publications. The network of articles with at least two citations was analyzed, and this analysis shows that the most extensive set of connected documents contains only 69 publications (25.9% of the dataset), confirming the absence of a consolidated SDGs field of study. The five studies with highest indices of bibliographic coupling are J Bebbington and Unerman (2018), Borges et al. (2017), Morioka et al. (2017), Rosati and Faria (2019), and Scheyvens and Biddulph (2018).

To complement the analysis of this indicator, the density diagram is represented in Figure 5, where it can be seen how the works of Khalili et al. (2015) and Touboullic and Walker (2015) are the most widely considered within the current literature. However, the existence of several clusters highlights the number of fields of study focused on SDGs.

Please Insert Figure 5 - Density diagram of the bibliographic coupling of articles

3.3.2 Journals

A minimum threshold of two articles per journal was set (Ferreira, 2018), a requirement met by 32 journals out of 120 (Figure 6). Analysis reveals that the five journals with the highest bibliographic coupling index are *Journal of Cleaner Production*, *Journal of Sustainable Tourism*, *Corporate Governance*, *International Journal of Management Studies*, and *Sustainability, Accounting, Management and Policy*. Furthermore, the network and density analysis (Figure 5) reveals the central role played by other journals like *Corporate Social Responsibility and Environmental Management*, *Business Strategy and the Environment*, and *Accounting, Auditing and Accountability Journal*. This shows how accounting scholars are paying increasing attention to the research area of the relationship between SDGs and non-financial reporting (Bebbington & Unerman, 2018; Guthrie et al., 2019).

Please Insert Figure 6 - Density diagram of the bibliographic coupling of journals

3.3.3 Authors

Out of the 705 authors in our dataset, only 40 had published at least two papers on the SDGs (Figure 7). The five authors with the highest bibliographic coupling index are Cavaliere, Leal Filho, Boluk, Higgins, and Rosati in collaboration with Faria. Figure 6 presents the density diagram of the bibliographic coupling analysis of authors. The analysis reveals the absence of a core group of researchers, unlike the case in traditional CSR studies. This could be connected to the absence of a consolidated network of researchers centered on the SDGs.

Please Insert Figure 7 - Density diagram of the bibliographic coupling of authors

3.4 Keywords analysis

The analysis of keyword co-occurrence is based on the principle that a research specialty can be identified by the particular associations established between its keywords (López-Fernández, Serrano-Bedia, & Pérez-Pérez, 2016). While citation analysis based on first- and second-generation indicators involves an intrinsic bias towards older studies, the analysis of co-occurrence of keywords does not suffer from this limitation, allowing important recent works to emerge. Given that SDG work is a new field, subject to fast technological change, the authors of this study agreed to complement the analysis of citations with that of co-occurrence to identify the main topics and trends investigated.

To perform the keyword analysis, we first extracted the authors' keywords for each article in our dataset. These keywords were then filtered for duplicates, homogenized in terms of spelling, and unique values were used for the analysis (Dabić et al., 2019). The resulting data were analyzed with VOSViewer's tool for exploring the co-occurrence of terms, in our case, the keywords. Only keywords that occurred at least five times were kept. In the results, 37 out of 121 keywords constituted the largest set of connected terms.

The five most common keywords are *developing countries*, *engagement*, *reporting*, *policies*, and *education*. The heterogeneity of these keywords confirms the multidisciplinary approach that has characterized SDG studies. However, the results also highlight how the concept of sustainable development remains related to developing countries. In this sense, the shift from MDGs to SDGs has been not followed by an effective change in perspective for management scholars.

To complement the analysis of keyword co-occurrence, the network of co-occurrence links among these keywords is presented through diagrams of the network and density of keywords (Figure 8). Thanks to this analysis, it can be seen how SDG studies could be divided into four clusters:

- *Red cluster*: Technological innovation through the introduction of new policies and business models.
- *Green cluster*: entrepreneurs, small and medium-sized enterprises (SMEs), multinational enterprises (MNEs), and cities' contribution to SDGs in developing countries.
- *Blue cluster*: the role non-financial reporting plays in achieving the SDGs.
- *Yellow cluster*: the role played by education in achieving the SDGs.

Please Insert Figure 8 - Network diagram of the co-occurrence of keywords

The “Red” cluster is composed of papers that analyze firms' contribution to the SDGs from a technological perspective. The concept of “technology” is related to the innovations firms implement in order to create competitive advantage through new forms of business models and policies (Bocken, Short, Rana, & Evans, 2014). In this field, the orientation toward the SDGs is related to new forms of technology such as blockchain systems (Kewell, Adams, &

Parry, 2017a), digital risks management tools (Amirshenava & Osanloo, 2018), and the IoT (Allam & Dhunny, 2019). Furthermore, some of these studies have tried to correlate the SDGs to the Industry 4.0 program (Quezada, Chiu, Gouvea da Costa, & Tan, 2017). Finally, some authors have analyzed the contribution to SDGs from the adoption of new business models inspired by the “circular economy” paradigm (Fuldauer, Ives, Adshead, Thacker, & Hall, 2019).

The Green cluster includes studies analyzing firms that operate in developing countries. As shown in Figure 7, this analysis is of several different entities, such as MNEs (Adams, 2017), SMEs (Scheyvens et al., 2016), cities (Rozhenkova, Allmang, Ly, Franken, & Heymann, 2019), and the public sector (Hancock, Ralph, & Ali, 2018). The heterogeneity of these entities suggests how academics have tried to identify contributions to the SDGs in developing countries from different perspectives. However, the fact that academics pay considerably more attention to the “developing countries” and the dearth of specific research on “developed countries” is in contrast to the SDGs paradigm that requires an active contribution from entities in nations throughout the world (Sachs, 2012).

The Blue cluster is characterized by the presence of topics typically related to accounting studies. The most relevant paper is the contribution made by Bebbington and Unerman (2018), who for the first time highlighted the need to provide scientific contributions for this new type of non-financial reporting. Another relevant contribution has been provided by Adams (2017) who describes the new operational paradigm firms follow in order to suit their activities to the SDGs. Specifically, Adams reflects on the connection between value and corporate reporting through the lens of the SDGs framework. Other studies provided some insights about the controversial mining sector (Tost, Hitch, Chandurkar, Moser, & Feiel, 2018).

Unlike many of the other papers, the Green cluster includes some based on empirical analysis. Following the traditional empirical methodologies that characterize non-financial reporting studies, these papers have tried to identify which factors impact firms' orientation towards the SDGs. Specifically, Rosati and Faria have tried to evaluate this orientation through two different lenses, concerning the internal and the external variables which affect firms' strategies (Rosati & Faria, 2019a, 2019b).

The Yellow cluster is composed of papers that connect the SDGs to education. It includes a large number of papers published by journals focused on education. Although there are several analysis perspectives regarding this cluster, the bulk of these papers dealt with the Principles for Responsible Management Education (PRME). Specifically, these studies analyze the positive externalities connected to the adoption of the PRME protocol by universities operating in different countries (Annan-Diab & Molinari, 2017). In this way, academics have started to fill in some of the main research gaps highlighted in prior studies about sustainable development education. In fact, despite the proliferation of courses about sustainable development, the current debate still remains inadequately developed within educational programs (García-Feijoo, Eizaguirre, & Rica-Aspiunza, 2020; Moggi, 2019). Further studies have tried to systematize this debate among the large number of studies published (Rosenbloom, Gudić, Parkes, & Kronbach, 2017). Another interesting field of studies within the yellow cluster is related to the tourism field. In particular, as evidenced by policymakers (UN WTO, 2017) tourism and education have certain similarities in eradicating poverty. The bulk of these studies analyze the role tourism enterprises play in generating financial and social value for the local communities (Colaner, Imanaka, & Prussia, 2018; Jamal & Camargo, 2014; Scheyvens & Biddulph, 2018). Furthermore, these studies have been conducted with the purpose of outlining a possible framework for the tourism industry's

useful contribution to achieving the SDGs (Boluk, Cavaliere, & Higgins-Desbiolles, 2017; Hall, 2019).

4. Literature review

Finally, we have also analyzed the network of interconnected topics based on how articles are categorized according to our taxonomy. Our analysis reveals that the bulk of the studies are characterized by the absence of a theoretical framework and by a worldwide perspective for analysis.

4.1 Jurisdiction

The jurisdiction analysis reveals that 184 papers have analyzed firms' contribution to the SDGs from a supranational perspective (Table 5). To elaborate, 76 papers have analyzed the contribution to the SDGs from a general perspective, 74 papers have observed the phenomenon through a comparison between two or more organizations, and 34 papers have studied this topic from a standpoint based on industry. Some of the main insights regarding the supranational effects related to the introduction of the SDGs have been provided by van Vuuren et al.(2015) and Gusmão Caiado et al.(2018). In particular, these two researchers have recorded the weaknesses and barriers resulting from the difficulties policymakers face in defining strategies to satisfy the short-term horizons of their policies and the long-term perspective that characterizes the 17 SDGs. This has been confirmed by Schandl et al. (2016), who identified a set of possible policies to support firms' transition to more sustainable business models.

Another perspective of analysis regards the lack of country-level regulation informed by the SDGs. In light of this, the choice to analyze the phenomenon at supranational level could be

related to the difficulty of performing country-level analysis. In fact, despite the involvement of 193 states in the definition of the 2030 Agenda, the first five years have seen the introduction of few country-level policies. Thus, many of the analyzing phenomena at the country level have been related to mandatory requirements about non-financial practices (Adams, 2017; Pineda-Escobar, 2019). Furthermore, the studies performed on contexts or sectors without non-financial regulation have stressed the central role played by business enterprises' orientation to sustainable development within the processes related to the SDGs (Dangelico, 2017; Mehmman & Teuteberg, 2016).

Finally, a limited number of studies have analyzed contributions to achieving the SDGs from specific organizations such as cities, national parks, and universities (Cottafava, Cavaglià, & Corazza, 2019; Ricciardelli, Manfredi, & Antonicelli, 2018; Sriarkarin & Lee, 2018).

Please Insert Table 5

4.2 Organizational focus

Although few studies have been focused on specific types of organizations, our analysis reveals that over 50% of the studies have analyzed MNEs or a general context including firms with different sizes (Table 6). Typically, the analysis regards either a cluster of large firms or groups of companies operating in the same context or industry. Thus, similar to traditional studies on CSR, most academics have based their analysis on MNEs and the private sector.

This is consistent with prior studies about the great contribution MNEs provide to achieving the SDGs. In particular, some of the main insights about the impacts of MNEs on the SDGs regard the integration of new targets within the enterprises' strategic plans. Several authors have highlighted the opportunity for MNEs to turn the constraints related to the adoption of

more sustainable practices into new sources of competitive advantage (Morioka et al., 2017; Topple, Donovan, Masli, & Borgert, 2017). However, according to Kolk et al. (2017), the debate should be extended through a deep analysis of the official data provided by international organizations such as UNCTAD.

The lack of studies about action to achieve the SDGs by SMEs mirrors the state of traditional research about CSR. In fact, the adoption of sustainable practices by SMEs represents an independent field of research for business and management scholars due to small enterprises' different attitude towards sustainable practices (Perrini, Russo, & Tencati, 2007). Rahdari, Sepasi and Moradi (2016) have tried to identify the main processes that make it more likely entrepreneurs will adopt practices oriented to the SDGs. In particular, the authors analyzed the phenomenon through different lenses in order to understand the differences related to ownership and governance's compositions. Another interesting contribution has been provided by Caldera, Desha and Dawes (2018), who identify a set of 9 characteristics that favor the achievement of competitive advantage when the SDGs are integrated into SMEs' strategies.

Finally, our results highlight how an increasing number of management scholars have started to provide insights about the role played by universities and cities. In particular, the majority of studies about universities have been conducted analyze the effects on society of the PRME being adopted within business schools (Rosenbloom et al., 2017; Wood T. & Pansarella, 2019), while the studies on cities have analyzed strategies adopted to eradicate challenges such as poverty and GHG emissions (Manu et al., 2019; Rozhenkova et al., 2019).

Please Insert Table 6

4.3 Geographical location

Analysis of the studies' geographical focus revealed 62.65% of the studies were performed on the worldwide context (Table 7). This result confirms the observations made in section 4.1 on jurisdiction. The worldwide perspective of analysis could be related to the high degree of attention MNEs pay to the SDGs. Furthermore, the continents with the highest number of studies are Australasia and Europe. This has also been the case in prior literature reviews about non-financial topics such as intellectual capital disclosure (Guthrie et al., 2012). The results related to the European context could stem from the increasing attention paid by the European Commission to the SDGs (Wong, 2019). Furthermore, a large number of studies have been performed to analyze the contribution of European universities to the SDGs (Parkes, Buono, & Howaidy, 2017). The increasing attention from European scholars has also been encouraged by the development of specific research lines from some of the main schools of thought on social and environmental topics (Bebbington & Unerman, 2018).

Other papers regard the African (22), South American (10), and North American (4) contexts. Despite the relatively low number of contributions, the research performed on Africa and South America represents an interesting field of study for academics, practitioners, and policymakers. Specifically, these studies have provided valuable insights about geographical contexts more exposed to the negative effects of un-sustainable development. These studies have analyzed controversial aspects of foreign direct investment (FDI) by MNEs in developing countries. Some have analyzed the paradox of beneficial new work opportunities being developed alongside negative effects on public health and the environment (Hancock et al., 2018; Manu et al., 2019). Furthermore, some academics have tried to identify best practices developed by governments in order to develop more knowledge about sustainable entrepreneurship and investments (Partey, Zougmore, Ouédraogo, & Campbell, 2018; Pineda-Escobar, 2019).

Please Insert Table 7

4.4 The field of SDG literature

Five years after the launch of the 2030 Agenda, the SDGs could be considered a topic within the research areas of “Business & Strategy” and “Performance Measurement” (Table 8). Scholars perceive the SDGs as possible strategic drivers for business enterprises due to their value relevance. In fact, several studies have underlined the positive effects of their integration within firms’ business models and strategic plans (Adams, 2017; Mukhi & Quental, 2019; Qin, Harrison, & Chen, 2019). The majority of collected evidence addresses the adoption of new organizational behaviors within sectors that have a direct impact on the environment, such as Tourism, Mining, and Oil & Gas (Monteiro, da Silva, & Moita Neto, 2019; Morioka et al., 2017; Musavengane, 2019).

However, analysis of the data requires an understanding of current conditions. In 2018, more accounting scholars started to include the SDGs within their research lines (Bebbington & Unerman, 2018). Thus the next few years will likely see rapid growth in the overall number of contributions exploring the accounting and accountability implications of including the SDGs in the managerial decision-making of business enterprises. Moreover, the development of new forms of regulation about non-financial reporting will also determine the shape of research, especially given the evidence-based approach of accounting scholars. However, while Bebbington and Unerman have launched a research agenda, the bibliometric analysis confirms the earlier existence of accounting research regarding the SDGs. Some of the main contributions have been provided by Rosati and Faria (2019a, 2019b), who have performed empirical analysis to evaluate institutional and organizational factors related to the voluntary integration of the SDGs within firms’ non-financial reports. Another relevant contribution has been provided by Ike and colleagues (2019), who evaluated a sample of Japanese firms to

identify the main factors that influence the prioritization of SDGs within non-financial reports. Furthermore, Liu et al. (2018) underlined the need for preparers to revise their approach to environmental accounting practices to encourage adoption of a long-term vision approach to sustainable development.

Please Insert Table 8

4.5 Research methods

The research methods adopted to describe contributions to the SDGs are highly heterogeneous (Table 9), confirming the multidisciplinary approach that characterizes business and management studies on sustainable behaviors (Dentchev et al., 2018; Dubey et al., 2018). Specifically, 27.44% of the papers have been prepared through theoretical analyses, 24.44% with quantitative methods, and 20.68% through qualitative studies. Contrary to traditional studies about CSR (Milne & Adler, 1999), only 7.52% of the papers have included content analysis in their methodology. However, the diversity of research methods used to perform these studies could lead to the generation of more and better knowledge about achieving the SDGs. In fact, as Bebbington and Unerman (2018) remark, research on the SDGs should not be performed only for academic purposes, as these goals play a relevant role for policymakers. Representing them through several alternative lenses could favor a wide diffusion of knowledge between the stakeholders involved in the debate. This has also been observed by Kolk et al. (2017), who highlight the necessity for business scholars to develop highly interdisciplinary studies.

Please Insert Table 9

4.6 Theoretical framework

The analysis reveals the absence of a consolidated theoretical model to investigate the SDGs from a business and management view (Table 10). This absence of a consolidated theoretical framework within the debate represents one of the main challenges for business and management scholars, and has been observed by several authors within their research agenda. In particular, Bebbington and Unerman (2018) stated that the development of a theoretical framework from accounting scholars will facilitate policymakers' definition of their policies. Similarly, Kolk et al. (2017) suggested that international business scholars develop theoretical studies to support policymakers in their decision-making processes.

However, only 25.94% of the studies considered a theoretical framework within them. These studies have been conducted according to prior frameworks based on economic theories, business and management paradigms, or practitioners' models (Diaz-Sarachaga & Jato-Espino, 2019; Musavengane, 2019; Rahdari et al., 2016). The current state of research does not adopt a specific framework to analyze the phenomenon, and thus when researchers adopt a framework to use in their papers, this choice does not result from the existence of a clear theory regarding the SDGs, but rather from the opportunity to analyze them according to frameworks already widely adopted within researchers' individual fields. Other authors have tried to develop innovative frameworks according to the evidence collected within their research (Goyal, Esposito, & Kapoor, 2018; Muff, Kapalka, & Dyllick, 2017; Stefan Schaltegger, 2018). However, Schaltegger (2018) describes barriers that make it difficult to develop a consolidated framework for considering the connection between business enterprises and SDGs. For example, different types of goals within the 2030 Agenda require different degrees of involvement from firms to be achieved.

5. Discussion and future research directions

Since the Rio Conference in 2012, an increasing number of business and management scholars have started to consider the SDGs in their research. Their inclusion represents an innovative pathway for academics due to the macroeconomic character of the 2030 Agenda. Concepts such as the eradication of poverty, wellbeing, and peace have typically been analyzed from a policymaking perspective rather than a scholarly one. In this sense, the research agenda developed to sustain the analysis of the SDGs at an organizational level will be a relevant challenge for the coming years.

The evidence collected through our bibliometric analysis and literature review have revealed the new challenges faced by business and management scholars. In particular, the analysis has uncovered an absence of consolidated literature about the SDGs in the business and management fields. Instead, papers appear within four clusters that could be theoretically divided into the following research areas: *technological innovation*, *contribution of enterprises and cities to developing countries*, *non-financial reporting*, and *education*.

Through research related to technological innovation, several authors have tried to conceptualize a connection between innovation and sustainable development. In particular, those studies have analyzed both the introduction of technological innovation in traditional sectors, such as farming (Partey et al., 2018), and the effects related to the adoption of new tools, such as blockchain and IoT (Saber, Kouhizadeh, Sarkis, & Shen, 2019). However, the analysis of their research methods has shown that only few studies were conducted on single organizations. Thus, the overall knowledge about the effects of disruptive innovation within the processes should be extended through the adoption of case studies or content analysis.

Another interesting perspective is the standalone research area about developing countries. Understanding the dynamics that affect developing countries can be complicated due to the mixed impacts of FDI from MNEs. Some studies have analyzed FDI by describing its direct

contribution to the SDGs (Kourula, Pisani, & Kolk, 2017; van Zanten & van Tulder, 2018). On the other hand, some academics have analyzed the unethical paradoxes that characterize the development of business enterprises in contexts without adequate protection for local communities' wellbeing (Hancock et al., 2018). In addition, other studies have emphasized governments' contribution to the development of new forms of business enterprises within these underdeveloped areas (Pineda-Escobar, 2019). However, according to the results of the literature review, future research could be focused on the underdeveloped area of South America.

Analysis of the non-financial reporting cluster reveals unexplored research areas related both to traditional topics, such as the evaluation of the relationship between SDGs and firm performance, and to innovative topics, such as the introduction of new technologies for sustainable development (Bebbington & Unerman, 2018; Kewell, Adams, & Parry, 2017b). Literature reviews have also suggested the existence of several research agendas developed over the years, in order to extend the scientific knowledge about SDGs (Ike et al., 2019; Rosati & Faria, 2019a). In particular, future research should address the gaps regarding the comprehension of country-level dynamics that affect firms' adoption of practices inspired by the SDGs. In fact, as observed in our literature review, little research has been conducted from a country-level perspective. Thus, extending the current body of knowledge to additional countries or to a firm organizational level represents a possible research trend that could increase understanding of specific dynamics such as SDG reporting, SDG-inspired business models, or the integration of the SDGs within strategic plans.

The last research area consists of factors related to the relationships between tourism, education and poverty eradication. The field is well developed due to contributions provided by several academics after the launch of the special issue proposed by Parkes et al. (2017)

about the PRME. This research area's relevance is confirmed by significant papers in the literature about the contributions of universities. However, this research could be extended through the development of further studies to evaluate the relationship between education and specific SDGs. Furthermore, future research could analyze educational programs other than the PRME.

Conjoint analysis of the four clusters unveils a high degree of linkages between topics. This evidence appears both in the literature review, with its heterogeneous results, and the keyword analysis. Several authors have encouraged the inclusion of contributions from other fields of study into business and management research so as to involve policymakers within the debate (Bebbington & Unerman, 2018; Kolk et al., 2017), while our research has shown an absence of widely adopted research methods. Furthermore, the central role played by the *Journal of Cleaner Production* underlines the multidisciplinary character of the field. A future opportunity could be the inclusion of ecological and socioeconomical perspectives of analysis to encourage more direct interlinkages between certain SDGs and business enterprises.

Finally, although we have excluded any limitations in terms of keywords and journals from our research strategy, our analysis reveals the absence of an independent framework of analysis to evaluate business enterprises' contribution to the SDGs. This represents the main future challenge for business and management scholars. In fact, the collected evidence suggests that even the frameworks traditionally used in business studies do not appear adequate to represent a complex topic, such as the SDGs. Specifically, Schaltegger (2018) states that the identification of a clear research framework to analyze the SDGs is highly complex due to the "missing links" between business enterprises and some targets required by the 2030 Agenda. It appears difficult to conceptualize a theoretical framework that can be

used universally to analyze the phenomenon due to the differences between countries, industries, and firms. Thus, future research could be addressed to fill this gap through the implementation of new frameworks to describe standalone research areas, such as international business and accounting practices (Bebbington & Unerman, 2018; Kolk et al., 2017).

6. Conclusion

The achievement of the SDGs represents one of the main challenges for Governments due to the global pressures made by worldwide stakeholders. However, such ambitious goals could not be gained without the direct involvement of business enterprises. In fact, despite the SDGs are evaluated at country-level, a large part of the SDGs regards corporate strategies and behaviors (Sachs, 2012).

Starting from the MDGs' experience, the 2030 Agenda filled this gap through the explicit provisions of goals directly concerning companies. In detail, certain SDGs such as 12.6 and 16.6 requires to the UN Member States to sustain the development of a more transparent economic systems through the provision of form of mandatory non-financial reporting practices. Furthermore, other examples are represented by targets related to macro themes, such as the eradication of the poverty or the global warming. Thus, the full achievement of a set of 17 goals characterized by different degree of interlinkages between them requires an effective firm contribution in a managerial, organizational and reporting perspective.

However, despite this provision, the path toward the full achievement of the SDGs is still far, as a consequence of the different degree of knowledge regarding the need to implement more sustainable practices.

The development of new knowledge about SDGs required the direct involvement of business and management scholars that represents the *trait d'union* between theories and practices. In particular, the contribution provided by those scholars consists of an evidence-based approach that is characterized by several differences with the research methods traditionally adopted in other research fields (Bebbington, 2013). In this regard, several academics highlighted the exigence to take a stand within the debate in order to increase the overall knowledge about the contribution given by business enterprises to the SDGs (Bebbington & Unerman, 2018; Kolk et al., 2017). However, despite the increasing number of papers published during the first years after the official launch of the 2030 Agenda, the contribution provided by business and management scholars still remain fragmented.

According to this evidence, we have systematized the scientific knowledge on SDGs provided by business and management scholars. This evidence has been driven from the opportunity to contribute to a multidisciplinary debate through a micro-level analysis of the main strengths and weakness related to the inclusion of the SDGs within the business practices. Thus, our analysis have covered a set of topics characterized both by differences and connections. This evidence is confirmed by Schaltegger's theoretical proposition (2018) who underlined the complexities related to the systematization of the topic within a common framework, due to its high degree sophistication. In this sense, similar to the SDGs, the current debate is characterized by a high degree of heterogeneity in term of overall knowledge regard the topic.

In detail, building on the theoretical construct framed by Guthrie et al. (2012), our empirical evidence contributes by enriching the current information base about the SDGs. Indeed, in terms of geographical location, the bulk of papers included in our sample (i.e. 61.28%) takes a global view. Arguably, such research approach emerges from several analyses based on large-sized companies, such as MNEs (these analyses made up 26.32% of the sample). Along

these lines, it is worth mentioning that the European context is commonly studied rather than the African and Australasian areas. Given that corporate sustainability reporting was for a time not mandatory in Europe, the comparison of the performance among European and African companies might be insightful. The entry into force of Directive 95/2014/EU on non-financial disclosures (NFD) might have encouraged the espousal of the SDGs, and at the same time reduced the differences from the African context, where in countries such as South Africa, integrated reports are compulsory.

Still, in the field of SDG literature, business strategy takes second place according to our study, immediately before performance measurement. Conversely, non-financial and external reporting hold the last two positions. Therefore, policies devoted to merely enhancing corporate reporting on sustainability do not attract the attention of many business and management scholars, who seemingly do not find great interest against the exploration of issues, such as greenwashing imperative. By contrast, a particular attention deserves the understanding on “how” and “to what extent” the SDGs can strengthen business strategy and performance measurement. The focus of the papers comprising our sample is therefore mostly oriented inward rather than outward.

Taking up the conceptual pathway suggested by Guthrie et al. (2012) allowed us to discover an intriguing association between the research methods and the theoretical frameworks put forward. In particular, on one side, literature reviews are more common than both surveys and case studies analyses. On the other side, 74.06% of the papers investigated does not use a theoretical framework. Therefore, despite the vast amount of literature reviews carried out, most scholars are still in search of an active and shared theoretical framework. Such a finding implies a compelling opportunity for moving the current body of knowledge forward. Additionally, conceiving a new framework might spur further qualitative and quantitative studies with the aim to test its rationale.

Another result of our empirical analysis is the categorization of four research areas regarding the relationship between SDGs and business entities. Specifically, our results have described literature consolidated on technology, non-financial reporting, education, and developing countries. In addition, our findings have highlighted the lack of studies on other fields that could strategically benefit the SDGs' achievement, such as the analysis of the contribution provided by developed countries.

Our implications regards academics, policy makers and practitioners. The theoretical implications pertain the need to further investigate on the connections between SDGs and business enterprises. Although our results reveal the existence of four independent clusters, the scientific debate on the topic remains under analyzed by business and management scholars. Furthermore, our research confirms the theoretical proposition framed by Schaltegger (2018) concerning the difficult to develop a framework useful to identify the connections between a complex topic, such as the 2030 Agenda and business enterprises. However, despite the limits caused by the existence of goals not directly related to firms' activities, our results reveal that an increasing number of academics have started to develop a research debate over specific topics, such as reporting, technology, policies and education. Thus, business and management scholars could start to identify theoretical framework useful to analyze specific SDGs.

One policy implication of our research is the opportunity for policymakers to involve business and management scholars in their strategic groups. In fact, despite the policymakers' skepticism pertinent to the research outcomes provided by business and management scholars (Garcia-Torea et al., 2019), their contribution might be helpful to identify new strategies for achieving a highest sustainable development. In this regard, the preliminary evidences suggested that the involvement of business and management's academics could represents an

effective way to identify strategies useful to understand the main factors that impact on firms' contribution to sustainable development (Bebbington, 2013).

Finally, the managerial implications related to our research is represented by the insights collected within the papers. In particular, our study reveals that some academics have started to discuss over topics influencing practitioners' activities. In particular, some of these topics represent new frontiers both for consultants and managers. Interesting examples concern the intense debate on the SDGs reporting or the analyses based on the impacts of new technologies on SDGs (Quezada et al., 2017; Rosati & Faria, 2019a). Furthermore, the analysis unveils that an increasing number of business schools have started to include SDGs within their curricula (Annan-Diab & Molinari, 2017). Thus, the dialogue between theories and practices will represent a win-win's opportunity for scholars and practitioners to adequate their activities to a real life theme, such as the 2030 Agenda.

The next years will be characterized by a more intense debate about the SDGs. This evidence is confirmed by the quick development of special issues and conferences. Thus, the main limitations of our study is represented by the inclusion within our sample of studies characterized by different perspective of analysis. This limitation arguably depends on the novelty of the topic that has been preliminary introduced in academic and practitioner debates only in 2012 during the Rio Conference. In this sense, the future research could be addressed to fill our physiological gap through a more detailed exploration of specific topics related to the SDGs.

References

Adams, C. A. (2017). Conceptualising the contemporary corporate value creation process.

Accounting, Auditing and Accountability Journal, 30(4), 906–931.

<https://doi.org/10.1108/AAAJ-04-2016-2529>

- Allam, Z., & Dhunny, Z. A. (2019). On big data, artificial intelligence and smart cities. *Cities*, 89, 80–91. <https://doi.org/10.1016/j.cities.2019.01.032>
- Amirshenava, S., & Osanloo, M. (2018). Mine closure risk management: An integration of 3D risk model and MCDM techniques. *Journal of Cleaner Production*, 184, 389–401. <https://doi.org/10.1016/j.jclepro.2018.01.186>
- Annan-Diab, F., & Molinari, C. (2017). Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable Development Goals. *International Journal of Management Education*, 15(2), 73–83. <https://doi.org/10.1016/j.ijme.2017.03.006>
- Barclay, S., Momen, N., Case-Upton, S., Kuhn, I., & Smith, E. (2011). End-of-life care conversations with heart failure patients: A systematic literature review and narrative synthesis. *British Journal of General Practice*, Vol. 61, pp. e49–e62. <https://doi.org/10.3399/bjgp11X549018>
- Bebbington, J. (2013). As a matter of policy. *Social and Environmental Accountability Journal*, Vol. 33, pp. 1–4. <https://doi.org/10.1080/0969160X.2013.768086>
- Bebbington, J., & Unerman, J. (2018). Achieving the United Nations Sustainable Development Goals: An enabling role for accounting research. *Accounting, Auditing and Accountability Journal*, 31(1), 2–24. <https://doi.org/10.1108/AAAJ-05-2017-2929>
- Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. (2014, February 15). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, Vol. 65, pp. 42–56. <https://doi.org/10.1016/j.jclepro.2013.11.039>
- Boluk, K., Cavaliere, C. T., & Higgins-Desbiolles, F. (2017, September 2). Critical thinking to realize sustainability in tourism systems: Reflecting on the 2030 sustainable development goals. *Journal of Sustainable Tourism*, Vol. 25, pp. 1201–1204. <https://doi.org/10.1080/09669582.2017.1333263>
- Borges, J. C., Ferreira, T. C., de Oliveira, M. S., Macini, N., & Caldana, A. C. F. (2017). Hidden

- curriculum in student organizations: Learning, practice, socialization and responsible management in a business school. *International Journal of Management Education*, 15(2), 153–161. <https://doi.org/10.1016/j.ijme.2017.03.003>
- Caldera, H. T. S., Desha, C., & Dawes, L. (2018). Exploring the characteristics of sustainable business practice in small and medium-sized enterprises: Experiences from the Australian manufacturing industry. *Journal of Cleaner Production*, 177, 338–349. <https://doi.org/10.1016/j.jclepro.2017.12.265>
- Caputo, A., Marzi, G., Pellegrini, M. M. M. M., & Rialti, R. (2018). Conflict management in family businesses: A bibliometric analysis and systematic literature review. *International Journal of Conflict Management*, 29(4), 519–542. <https://doi.org/10.1108/IJCMA-02-2018-0027>
- Caputo, A., Pellegrini, M. M., Dabic, M., & Dana, L.-P. (2016). Internationalisation of firms from Central and Eastern Europe. *European Business Review*, 28(6), 630–651. <https://doi.org/10.1108/EBR-01-2016-0004>
- Colaner, N., Imanaka, J. L., & Prussia, G. E. (2018). Dialogic Collaboration across Sectors: Partnering for Sustainability. *Business and Society Review*, 123(3), 529–564. <https://doi.org/10.1111/basr.12154>
- Cottafava, D., Cavaglià, G., & Corazza, L. (2019). Education of sustainable development goals through students' active engagement: A transformative learning experience. *Sustainability Accounting, Management and Policy Journal*. <https://doi.org/10.1108/SAMPJ-05-2018-0152>
- Dabić, M., Maley, J., Dana, L. P., Novak, I., Pellegrini, M. M., & Caputo, A. (2019). Pathways of SME internationalization: a bibliometric and systematic review. *Small Business Economics*. <https://doi.org/10.1007/s11187-019-00181-6>
- Dangelico, R. M. (2017). What Drives Green Product Development and How do Different Antecedents Affect Market Performance? A Survey of Italian Companies with Eco-Labels.

- Business Strategy and the Environment*, 26(8), 1144–1161. <https://doi.org/10.1002/bse.1975>
- Dentchev, N., Rauter, R., Jóhannsdóttir, L., Snihur, Y., Rosano, M., Baumgartner, R., ... Jonker, J. (2018). Embracing the variety of sustainable business models: A prolific field of research and a future research agenda. *Journal of Cleaner Production*, 194, 695–703. <https://doi.org/10.1016/j.jclepro.2018.05.156>
- Diaz-Sarachaga, J. M., & Jato-Espino, D. (2019). Do sustainable community rating systems address resilience? *Cities*, 93, 62–71. <https://doi.org/10.1016/j.cities.2019.04.018>
- Dubey, R., Gunasekaran, A., Childe, S. J., Luo, Z., Wamba, S. F., Roubaud, D., & Foropon, C. (2018). Examining the role of big data and predictive analytics on collaborative performance in context to sustainable consumption and production behaviour. *Journal of Cleaner Production*, 196, 1508–1521. <https://doi.org/10.1016/j.jclepro.2018.06.097>
- Ferreira, F. A. F. (2018). Mapping the field of arts-based management: Bibliographic coupling and co-citation analyses. *Journal of Business Research*, 85(March 2017), 348–357. <https://doi.org/10.1016/j.jbusres.2017.03.026>
- Fuldauer, L. I., Ives, M. C., Adshead, D., Thacker, S., & Hall, J. W. (2019). Participatory planning of the future of waste management in small island developing states to deliver on the Sustainable Development Goals. *Journal of Cleaner Production*, 223, 147–162. <https://doi.org/10.1016/j.jclepro.2019.02.269>
- García-Feijoo, M., Eizaguirre, A., & Rica-Aspiunza, A. (2020). Systematic Review of Sustainable-Development-Goal Deployment in Business Schools. *Sustainability*, 12(1), 440. <https://doi.org/10.3390/su12010440>
- Garcia-Torea, N., Larrinaga, C., & Luque-Vílchez, M. (2019). Academic engagement in policy-making and social and environmental reporting. *Sustainability Accounting, Management and Policy Journal*. <https://doi.org/10.1108/SAMPJ-03-2019-0123>

Gaziulusoy, A. I., & Boyle, C. (2013). Proposing a heuristic reflective tool for reviewing literature in transdisciplinary research for sustainability. *Journal of Cleaner Production*, 48, 139–147.
<https://doi.org/10.1016/j.jclepro.2012.04.013>

GBS. (2019). *The SDGs in the reports of the Italian companies*. Retrieved from
https://www.francoangeli.it/Ricerca/Scheda_Libro.aspx?ID=26091&Tipo=Libro&strRicercaTes=26091&lingua=it&titolo=the+sdgs+in+the+reports+of+the+italian+companies

Giertsen, J. C. (1995). [the Liland case. The medical-legal declarations]. *Tidsskrift for Den Norske Laegeforening : Tidsskrift for Praktisk Medicin, Ny Raekke*, 115(25), 3152–3153. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/8539700>

Goyal, S., Esposito, M., & Kapoor, A. (2018). Circular economy business models in developing economies: Lessons from India on reduce, recycle, and reuse paradigms. *Thunderbird International Business Review*, 60(5), 729–740. <https://doi.org/10.1002/tie.21883>

Gusmão Caiado, R. G., Leal Filho, W., Quelhas, O. L. G., Luiz de Mattos Nascimento, D., Ávila, L. V., de Mattos Nascimento, D., & Ávila, L. V. (2018). A literature-based review on potentials and constraints in the implementation of the sustainable development goals. *Journal of Cleaner Production*, 198, 1276–1288. <https://doi.org/10.1016/j.jclepro.2018.07.102>

Guthrie, J., Parker, L. D., Dumay, J., & Milne, M. J. (2019). What counts for quality in interdisciplinary accounting research in the next decade: A critical review and reflection. *Accounting, Auditing and Accountability Journal*, 32(1), 2–25. <https://doi.org/10.1108/AAAJ-01-2019-036>

Guthrie, J., Ricceri, F., & Dumay, J. (2012). Reflections and projections: A decade of Intellectual Capital Accounting Research. *British Accounting Review*, 44(2), 68–82.
<https://doi.org/10.1016/j.bar.2012.03.004>

Hall, C. M. (2019). Constructing sustainable tourism development: The 2030 agenda and the

- managerial ecology of sustainable tourism. *Journal of Sustainable Tourism*, 27(7), 1044–1060.
<https://doi.org/10.1080/09669582.2018.1560456>
- Hancock, L., Ralph, N., & Ali, S. H. (2018). Bolivia's lithium frontier: Can public private partnerships deliver a minerals boom for sustainable development? *Journal of Cleaner Production*, 178, 551–560. <https://doi.org/10.1016/j.jclepro.2017.12.264>
- Ike, M., Donovan, J. D., Topple, C., & Masli, E. K. (2019). The process of selecting and prioritising corporate sustainability issues: Insights for achieving the Sustainable Development Goals. *Journal of Cleaner Production*, 236. <https://doi.org/10.1016/j.jclepro.2019.117661>
- Jamal, T., & Camargo, B. A. (2014). Sustainable tourism, justice and an ethic of care: toward the Just Destination. *Journal of Sustainable Tourism*, 22(1), 11–30.
<https://doi.org/10.1080/09669582.2013.786084>
- Kewell, B., Adams, R., & Parry, G. (2017a). Blockchain for good? *Strategic Change*, 26(5), 429–437.
<https://doi.org/10.1002/jsc.2143>
- Kewell, B., Adams, R., & Parry, G. (2017b). Blockchain for good? *Strategic Change*, 26(5), 429–437.
<https://doi.org/10.1002/jsc.2143>
- Khalili, N. R., Duecker, S., Ashton, W., & Chavez, F. (2015). From cleaner production to sustainable development: The role of academia. *Journal of Cleaner Production*, 96, 30–43.
<https://doi.org/10.1016/j.jclepro.2014.01.099>
- Kolk, A., Kourula, A., & Pisani, N. (2017). Multinational enterprises and the sustainable development goals: What do we know and how to proceed? *Transnational Corporations*, Vol. 24, pp. 9–32.
<https://doi.org/10.18356/6f5fab5e-en>
- Kourula, A., Pisani, N., & Kolk, A. (2017). Corporate sustainability and inclusive development: highlights from international business and management research. *Current Opinion in Environmental Sustainability*, Vol. 24, pp. 14–18. <https://doi.org/10.1016/j.cosust.2017.01.003>

- Le Blanc, D. (2015). Towards Integration at Last? The Sustainable Development Goals as a Network of Targets. *Sustainable Development*, 23(3), 176–187. <https://doi.org/10.1002/sd.1582>
- Liu, G., Yin, X., Pengue, W., Benetto, E., Huisingh, D., Schnitzer, H., ... Casazza, M. (2018, October 1). Environmental accounting: In between raw data and information use for management practices. *Journal of Cleaner Production*, Vol. 197, pp. 1056–1068. <https://doi.org/10.1016/j.jclepro.2018.06.194>
- Lombardi, R., Trequattrini, R., Cuozzo, B., & Cano-Rubio, M. (2019). Corporate corruption prevention, sustainable governance and legislation: First exploratory evidence from the Italian scenario. *Journal of Cleaner Production*, 217, 666–675. <https://doi.org/10.1016/j.jclepro.2019.01.214>
- López-Fernández, M. C., Serrano-Bedia, A. M., & Pérez-Pérez, M. (2016). Entrepreneurship and Family Firm Research: A Bibliometric Analysis of An Emerging Field. *Journal of Small Business Management*, 54(2), 622–639. <https://doi.org/10.1111/jsbm.12161>
- Manu, P., Mahamadu, A.-M., Booth, C., Olomolaiye, P. O., Coker, A., Ibrahim, A., & Lamond, J. (2019). Infrastructure procurement capacity gaps in Nigeria public sector institutions. *Engineering, Construction and Architectural Management*, 26(9), 1962–1985. <https://doi.org/10.1108/ECAM-11-2017-0240>
- Marzi, G., Dabić, M., Daim, T., & Garces, E. (2017). Product and process innovation in manufacturing firms: a 30-year bibliometric analysis. *Scientometrics*, 113(2), 673–704. <https://doi.org/10.1007/s11192-017-2500-1>
- Mehmann, J., & Teuteberg, F. (2016). The fourth-party logistics service provider approach to support sustainable development goals in transportation - A case study of the German agricultural bulk logistics sector. *Journal of Cleaner Production*, 126, 382–393. <https://doi.org/10.1016/j.jclepro.2016.03.095>

- Milne, M. J., & Adler, R. W. (1999). Exploring the reliability of social and environmental disclosures content analysis. *Accounting, Auditing & Accountability Journal*, 12(2), 237–256.
<https://doi.org/10.1108/09513579910270138>
- Moggi, S. (2019). Social and environmental reports at universities: a Habermasian view on their evolution. *Accounting Forum*, 43(3), 283–326. <https://doi.org/10.1080/01559982.2019.1579293>
- Monteiro, N. B. R., da Silva, E. A., & Moita Neto, J. M. (2019). Sustainable development goals in mining. *Journal of Cleaner Production*, 228, 509–520.
<https://doi.org/10.1016/j.jclepro.2019.04.332>
- Morioka, S. N., Bolis, I., Evans, S., & Carvalho, M. M. (2017). Transforming sustainability challenges into competitive advantage: Multiple case studies kaleidoscope converging into sustainable business models. *Journal of Cleaner Production*, 167, 723–738.
<https://doi.org/10.1016/j.jclepro.2017.08.118>
- Muff, K., Kapalka, A., & Dyllick, T. (2017). The Gap Frame - Translating the SDGs into relevant national grand challenges for strategic business opportunities. *International Journal of Management Education*, 15(2), 363–383. <https://doi.org/10.1016/j.ijme.2017.03.004>
- Mukhi, U., & Quental, C. (2019). Exploring the challenges and opportunities of the United Nations sustainable development goals: a dialogue between a climate scientist and management scholars. *Corporate Governance: The International Journal of Business in Society*, 19(3), 552–564.
<https://doi.org/10.1108/CG-01-2018-0028>
- Musavengane, R. (2019). Small hotels and responsible tourism practice: Hoteliers' perspectives. *Journal of Cleaner Production*, 220, 786–799. <https://doi.org/10.1016/j.jclepro.2019.02.143>
- Parkes, C., Buono, A. F., & Howaidy, G. (2017, July 1). The Principles for responsible management education (PRME): The first decade – What has been achieved? The next decade – Responsible management Education's challenge for the Sustainable Development Goals (SDGs).

International Journal of Management Education, Vol. 15, pp. 61–65.

<https://doi.org/10.1016/j.ijme.2017.05.003>

Partey, S. T., Zougmore, R. B., Ouédraogo, M., & Campbell, B. M. (2018, June 20). Developing climate-smart agriculture to face climate variability in West Africa: Challenges and lessons learnt. *Journal of Cleaner Production*, Vol. 187, pp. 285–295.

<https://doi.org/10.1016/j.jclepro.2018.03.199>

Perrini, F., Russo, A., & Tencati, A. (2007). CSR strategies of SMEs and large firms. Evidence from Italy. *Journal of Business Ethics*, 74(3), 285–300. <https://doi.org/10.1007/s10551-006-9235-x>

Pineda-Escobar, M. A. (2019). Moving the 2030 agenda forward: SDG implementation in Colombia. *Corporate Governance: The International Journal of Business in Society*, 19(1), 176–188.

<https://doi.org/10.1108/CG-11-2017-0268>

Pittaway, L., & Cope, J. (2007). Entrepreneurship education: A systematic review of the evidence. *International Small Business Journal*, Vol. 25, pp. 479–510.

<https://doi.org/10.1177/0266242607080656>

Pizzi, S., Caputo, F., & Venturelli, A. (2020). Accounting to ensure healthy lives: critical perspective from the Italian National Healthcare System. *Corporate Governance (Bingley)*.

<https://doi.org/10.1108/CG-03-2019-0109>

PWC. (2018). *From promise to reality: Does business really care about the SDGs?* Retrieved from www.pwc.com/sdgreportingchallenge

Qin, Y., Harrison, J., & Chen, L. (2019). A framework for the practice of corporate environmental responsibility in China. *Journal of Cleaner Production*, 235, 426–452.

<https://doi.org/10.1016/j.jclepro.2019.06.245>

Quezada, L. E., Chiu, A. S. F., Gouvea da Costa, S. E., & Tan, K. H. (2017, August 1). Operational Excellence towards Sustainable Development Goals through Industry 4.0. *International Journal*

of *Production Economics*, Vol. 190, pp. 1–2. <https://doi.org/10.1016/j.ijpe.2017.06.014>

Rahdari, A., Sepasi, S., & Moradi, M. (2016). Achieving sustainability through Schumpeterian social entrepreneurship: The role of social enterprises. *Journal of Cleaner Production*, 137, 347–360.

<https://doi.org/10.1016/j.jclepro.2016.06.159>

Ricciardelli, A., Manfredi, F., & Antonicelli, M. (2018). Impacts for implementing SDGs: sustainable collaborative communities after disasters. The city of Macerata at the aftermath of the earthquake. *Corporate Governance: The International Journal of Business in Society*, 18(4), 594–623. <https://doi.org/10.1108/CG-01-2018-0027>

Rosati, F., & Faria, L. (2019a). Addressing the SDGs in sustainability reports: The relationship with institutional factors. *Journal of Cleaner Production*, 215, 1312–1326.

<https://doi.org/10.1016/j.jclepro.2018.12.107>

Rosati, F., & Faria, L. (2019b). Business contribution to the Sustainable Development Agenda: Organizational factors related to early adoption of SDG reporting. *Corporate Social Responsibility and Environmental Management*, 26(3), 588–597.

<https://doi.org/10.1002/csr.1705>

Rosenbloom, A., Gudić, M., Parkes, C., & Kronbach, B. (2017). A PRME response to the challenge of fighting poverty: How far have we come? Where do we need to go now? *International Journal of Management Education*, 15(2), 104–120. <https://doi.org/10.1016/j.ijme.2017.02.005>

Rozhenkova, V., Allmang, S., Ly, S., Franken, D., & Heymann, J. (2019). The role of comparative city policy data in assessing progress toward the urban SDG targets. *Cities*, 95.

<https://doi.org/10.1016/j.cities.2019.05.026>

Saberi, S., Kouhizadeh, M., Sarkis, J., & Shen, L. (2019). Blockchain technology and its relationships to sustainable supply chain management. *International Journal of Production Research*, 57(7),

2117–2135. <https://doi.org/10.1080/00207543.2018.1533261>

- Sachs, J. D. (2012). From millennium development goals to sustainable development goals. *The Lancet*, Vol. 379, pp. 2206–2211. [https://doi.org/10.1016/S0140-6736\(12\)60685-0](https://doi.org/10.1016/S0140-6736(12)60685-0)
- Sassetti, S., Marzi, G., Cavaliere, V., & Ciappei, C. (2018). Entrepreneurial cognition and socially situated approach: a systematic and bibliometric analysis. *Scientometrics*, 116(3), 1675–1718. <https://doi.org/10.1007/s11192-018-2809-4>
- Schaltegger, S. (2018). Linking Environmental Management Accounting: A Reflection on (Missing) Links to Sustainability and Planetary Boundaries. *Social and Environmental Accountability Journal*, 38(1), 19–29. <https://doi.org/10.1080/0969160X.2017.1395351>
- Schaltegger, Stefan. (2018). Linking Environmental Management Accounting: A Reflection on (Missing) Links to Sustainability and Planetary Boundaries. *Social and Environmental Accountability Journal*, 38(1), 19–29. <https://doi.org/10.1080/0969160X.2017.1395351>
- Schandl, H., Hatfield-Dodds, S., Wiedmann, T., Geschke, A., Cai, Y., West, J., ... Owen, A. (2016). Decoupling global environmental pressure and economic growth: scenarios for energy use, materials use and carbon emissions. *Journal of Cleaner Production*, 132, 45–56. <https://doi.org/10.1016/j.jclepro.2015.06.100>
- Scheyvens, R., Banks, G., & Hughes, E. (2016). The Private Sector and the SDGs: The Need to Move Beyond ‘Business as Usual.’ *Sustainable Development*, 24(6), 371–382. <https://doi.org/10.1002/sd.1623>
- Scheyvens, R., & Biddulph, R. (2018). Inclusive tourism development. *Tourism Geographies*, 20(4), 589–609. <https://doi.org/10.1080/14616688.2017.1381985>
- Sneddon, C., Howarth, R. B., & Norgaard, R. B. (2006). Sustainable development in a post-Brundtland world. *Ecological Economics*, 57(2), 253–268. <https://doi.org/10.1016/j.ecolecon.2005.04.013>
- Sriarkarin, S., & Lee, C. H. (2018). Integrating multiple attributes for sustainable development in a

- national park. *Tourism Management Perspectives*, 28, 113–125.
<https://doi.org/10.1016/j.tmp.2018.08.007>
- Topple, C., Donovan, J. D., Masli, E. K., & Borgert, T. (2017). Corporate sustainability assessments: MNE engagement with sustainable development and the SDGs. *Transnational Corporations*, 24(3), 61–71. Retrieved from <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85029955710&partnerID=40&md5=d8daed84cd66f81afd1d0395122e2c19>
- Tost, M., Hitch, M., Chandurkar, V., Moser, P., & Feiel, S. (2018). The state of environmental sustainability considerations in mining. *Journal of Cleaner Production*, 182, 969–977.
<https://doi.org/10.1016/j.jclepro.2018.02.051>
- Touboulic, A., & Walker, H. (2015). Love me, love me not: A nuanced view on collaboration in sustainable supply chains. *Journal of Purchasing and Supply Management*, 21(3), 178–191.
<https://doi.org/10.1016/j.pursup.2015.05.001>
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. *British Journal of Management*, Vol. 14, pp. 207–222. <https://doi.org/10.1111/1467-8551.00375>
- UN WTO. (2017). Tourism and the Sustainable Development Goals – Journey to 2030. In *Tourism and the Sustainable Development Goals – Journey to 2030*.
<https://doi.org/10.18111/9789284419401>
- van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. <https://doi.org/10.1007/s11192-009-0146-3>
- van Vuuren, D. P., Kok, M., Lucas, P. L., Prins, A. G., Alkemade, R., van den Berg, M., ... Stehfest, E. (2015). Pathways to achieve a set of ambitious global sustainability objectives by 2050: Explorations using the IMAGE integrated assessment model. *Technological Forecasting and*

Social Change, 98, 303–323. <https://doi.org/10.1016/j.techfore.2015.03.005>

van Zanten, J. A., & van Tulder, R. (2018). Multinational enterprises and the Sustainable Development Goals: An institutional approach to corporate engagement. *Journal of International Business Policy*, 1(3–4), 208–233. <https://doi.org/10.1057/s42214-018-0008-x>

Wong, R. (2019). What makes a good coordinator for implementing the Sustainable Development Goals? *Journal of Cleaner Production*, 238, 117928.
<https://doi.org/10.1016/j.jclepro.2019.117928>

Wood T., J., & Pansarella, L. (2019). Inside the borders but outside the box: An immersion program aligned with the PRME and the SDG to foster reflexivity. *International Journal of Management Education*, 17(3). <https://doi.org/10.1016/j.ijme.2019.100306>

Zupic, I., & Čater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods*, 18(3), 429–472. <https://doi.org/10.1177/1094428114562629>

Table 1 - Classification system for analysing SDG articles.

A. Jurisdiction
A1. Supranational/international/comparative - general
A1.1. Supranational/international/comparative - industry
A1.2. Supranational/international/comparative - organisational
A2. National – general
A2.1. National – industry
A2.2. National – organisational
A3. One organisation
B. Organisational focus
B1. MNEs
B2. SMEs
B3. Cities
B4. Public sector
B5. Not for profit
B6. Universities
B7. General/other
C. Geographical Location
C1. North America
C2. South America
C3. Africa
C4. Europe
C5. Australasia
C6. Global
D. Focus on SDG literature
D1. External reporting (media, websites)
D2. Non-financial reporting
D3. Policies
D4. Strategy
D5. Performance measurement
D6. Other (including general)
E. Research methods
E1. Case/field study/interview
E2. Content analysis/historical analysis
E3. Survey/questionnaire/other empirical
E4. Commentary/normative/policy
E5. Theoretical: literature review/empirical
F. Frameworks and models
F0. No model proposed
F1.0. Applies or considers previous models
F1.1. Proposes a new model

Source: Guthrie et al. 2012, p. 71

Table 2 – Top 20 most cited journals

Journal	Cited by	Articles	Avg citation	ABS ranking	Impact factor
Journal of Cleaner Production	653	58	11,26	2	6,395
International Journal of Management Education	126	17	7,41	2	-
Journal of Purchasing and Supply Management	57	1	57	2	3,089
Technological Forecasting and Social Change	50	2	25	3	3,815
Research Policy	45	1	45	4*	5,425
Accounting, Auditing and Accountability Journal	43	2	21,5	3	2,537
Journal of Sustainable Tourism	33	18	1,83	3	-
Tourism Geographies	33	3	11	2	-
Transnational Corporations	31	10	3,1	2	-
Journal of Tourism Futures	21	2	10,5	-	-
Strategic Change	20	2	10	2	-
Cities	15	4	3,75	2	3,853
Business Strategy and the Environment	14	4	3,5	2	6,381
Corporate Social Responsibility and Environmental Management	13	5	2,6	1	5,513
Disaster Prevention and Management	12	1	12	-	1,247
International Journal of Managing Projects in Business	10	1	10	1	1,6
Thunderbird International Business Review	10	1	10	2	-
Construction Economics and Building	9	1	9	-	-
International Journal of Entrepreneurial Behaviour and Research	9	1	9	-	2,391
International Journal of Entrepreneurial Venturing	8	2	4	1	-

Table 3 - Most cited articles

Title	Year	Cited
Decoupling global environmental pressure and economic growth: scenarios for energy use, materials use and carbon emissions	2016	130
Application of multi-criteria decision analysis in design of sustainable environmental management system framework	2013	87
Love me, love me not: A nuanced view on collaboration in sustainable supply chains	2015	57
A critical assessment of the Higher Education for Sustainable Development from students' perspectives - A Chinese study	2013	57
Pathways to achieve a set of ambitious global sustainability objectives by 2050: Explorations using the IMAGE integrated assessment model	2015	50
Three frames for innovation policy: R&D, systems of innovation and transformative change	2018	45
Future sustainability scenarios for universities: Moving beyond the United Nations Decade of Education for Sustainable Development	2016	38
Achieving sustainability through Schumpeterian social entrepreneurship: The role of social enterprises	2016	32
Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable Development Goals	2017	31
Achieving the United Nations Sustainable Development Goals: An enabling role for accounting research	2018	27

Table 4 - Most prolific authors

Author	Documents	Citations
Leal Filho W.	5	82
Scheyvens R.	5	39
Cavaliere C.T.	3	11
Gössling S.	3	4
Higgins-Desbiolles F.	3	10

Table 5 – Jurisdictional focus of SDG articles.

Keyword	Papers	Cited	% Papers	% Citation
A1. Supranational/International/Comparative - General	76	50	28,57%	30,12%
A1.1. Supranational/International/Comparative - Industry	34	18	12,78%	10,84%
A1.2. Supranational/International/Comparative - Organisational	74	54	27,82%	32,53%
A2. National – General	36	21	13,53%	12,65%
A2.2. National – Organisational	29	18	10,90%	10,84%
A3. One Organization	17	5	6,39%	3,01%

Table 6 - Organizational focus of SDG articles.

Keyword	Papers	Cited	% Papers	% Citation
B1. MNEs	70	42	26,32%	25,30%
B2. SMEs	37	23	13,91%	13,86%
B3. Cities	21	11	7,89%	6,63%
B4. Public Sector	21	14	7,89%	8,43%
B5. Not For Profit	3	2	1,13%	1,20%
B6. Universities	35	27	13,16%	16,27%
B7. General/Other	79	47	29,70%	28,31%

Table 7 - Geographic focus of SDG articles.

Keyword	Papers	Cited	% Papers	% Citation
C1. North America	4	2	1,50%	1,20%
C2. South America	10	8	3,76%	4,82%
C3. Africa	22	10	8,27%	6,02%
C4. Europe	26	12	9,77%	7,23%
C5. Australasia	41	30	15,41%	18,07%
C6. World	163	104	61,28%	62,65%

Table 8 – SDG literature fields.

Keyword	Papers	Cited	% Papers	% Citation
D1. External Reporting (Media, Websites)	8	2	3,01%	1,20%
D2. Non-Financial Reporting	24	14	9,02%	8,43%
D3. Policy	36	25	13,53%	15,06%
D4. Business Strategy	64	41	24,06%	24,70%
D5. Performance Measurement	61	40	22,93%	24,10%
D6. General/Other	73	44	27,44%	26,51%

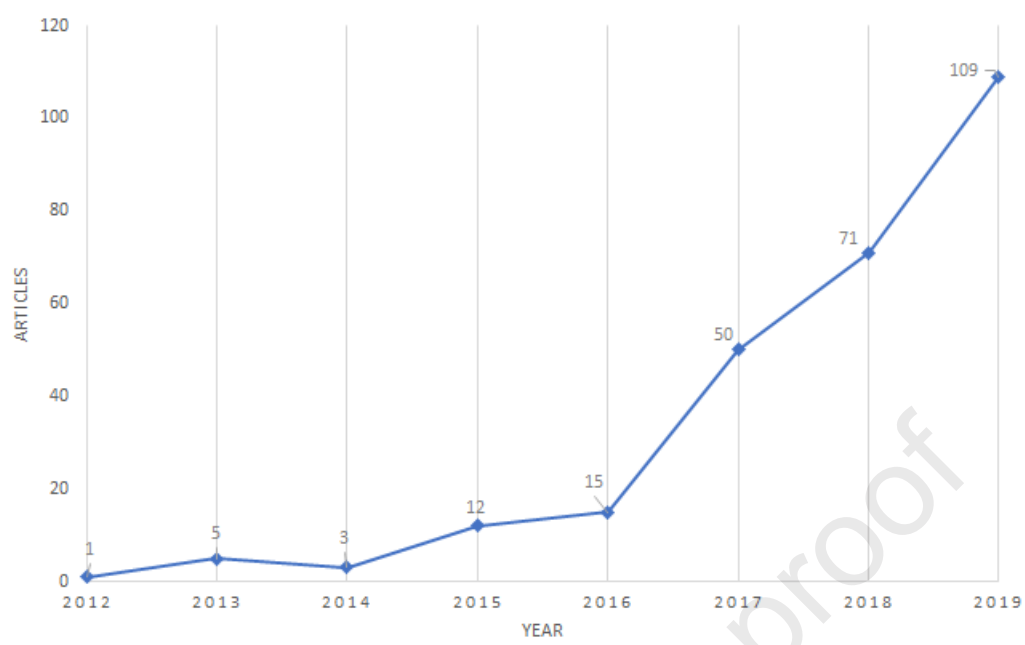
Table 9 – Research methods of SDG articles.

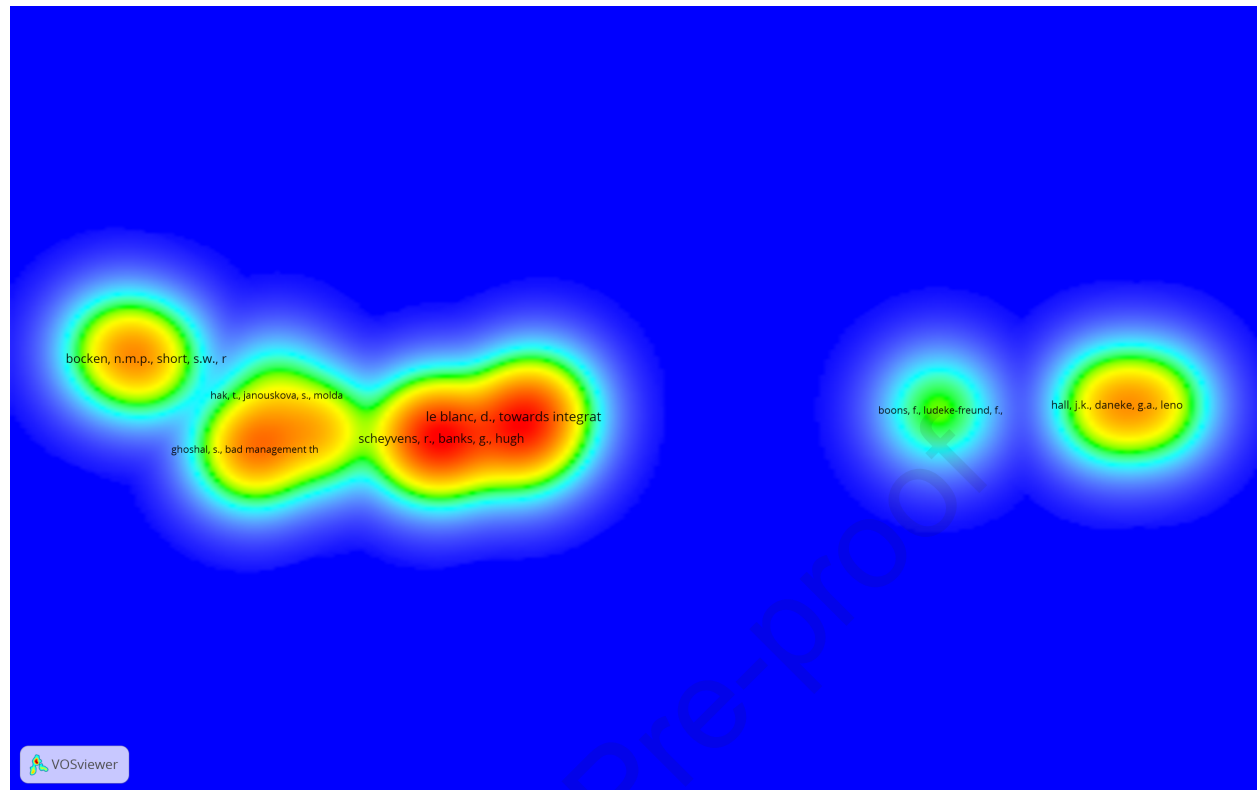
Keyword	Papers	Cited	% Papers	% Citation
E1. Case/Field Study/Interview	55	33	20,68%	19,88%
E2. Content Analysis/Historical Analysis	20	15	7,52%	9,04%
E3. Survey/Questionnaire/Other Empirical	65	39	24,44%	23,49%
E4. Commentary/Normative/Policy	53	31	19,92%	18,67%
E5. Theoretical: Literature Review/Empirical	73	48	27,44%	28,92%

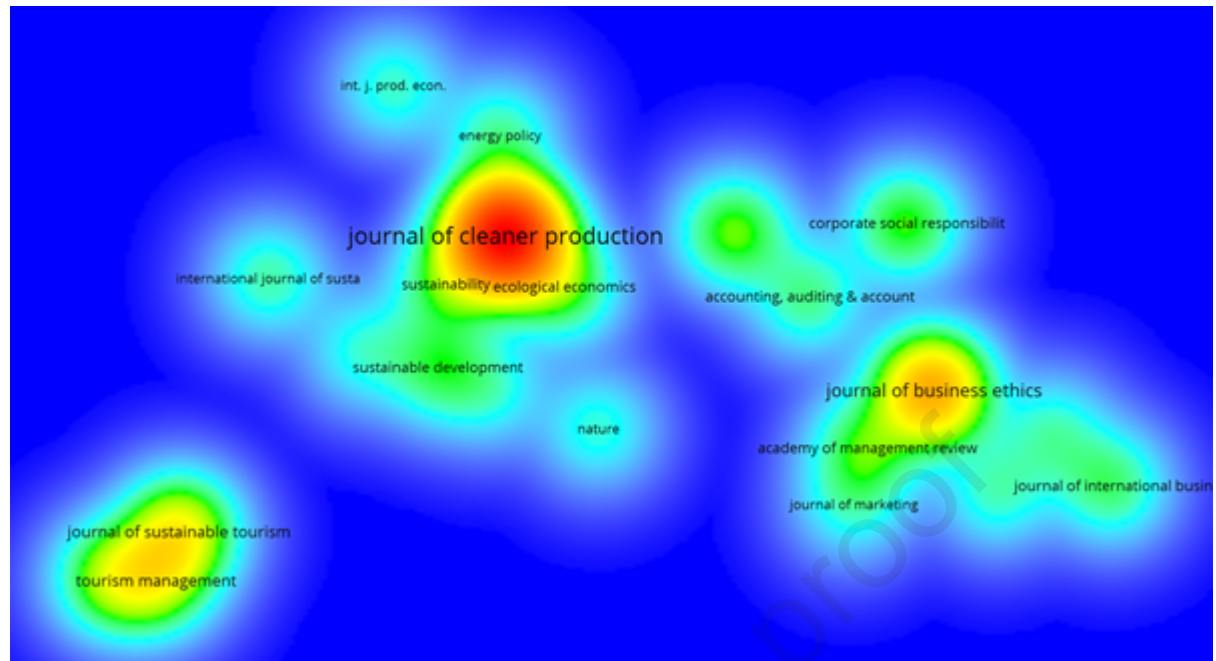
Table 10 – Theoretical framework adopted by SDG scholars.

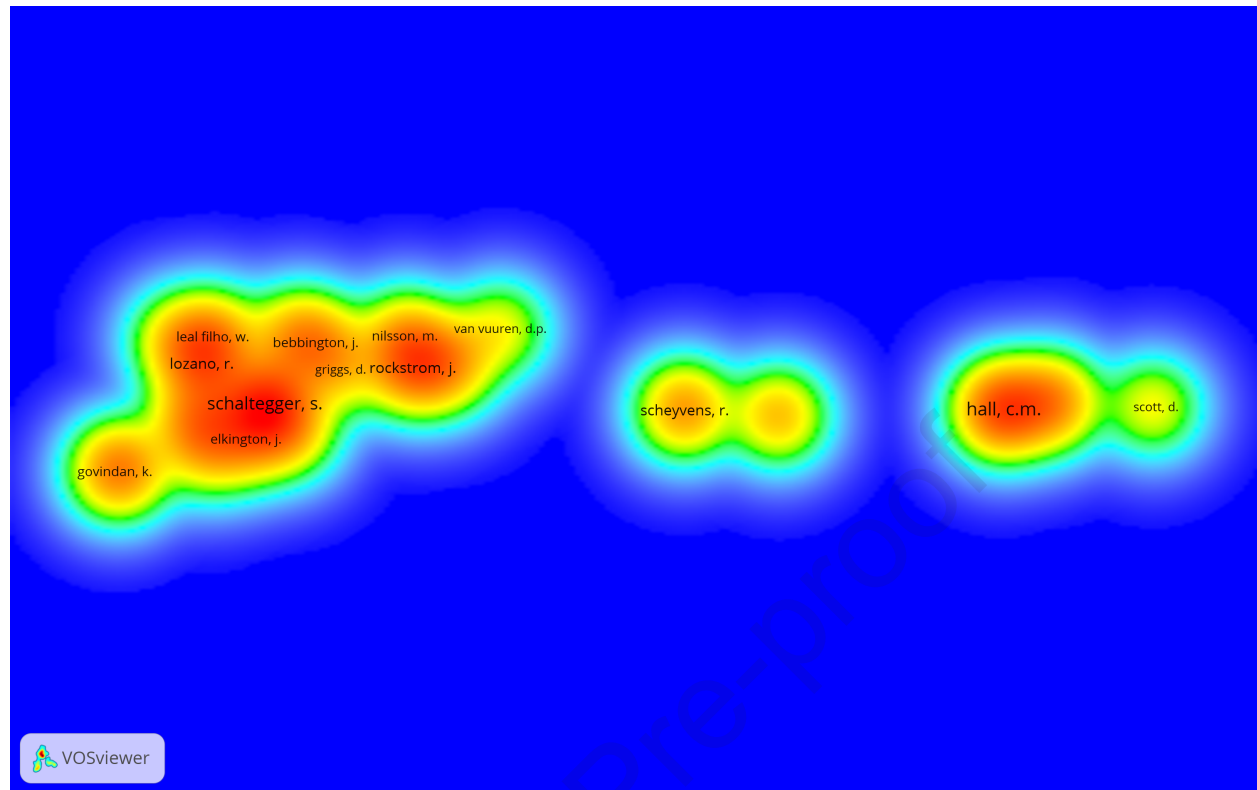
Keyword	Papers	Cited	% Papers	% Citation
F0. No Model Proposed	197	124	74,06%	74,70%
F1.0. Applies Or Considers Previous Models;	31	18	11,65%	10,84%
F1.1. Proposes A New Model	38	24	14,29%	14,46%

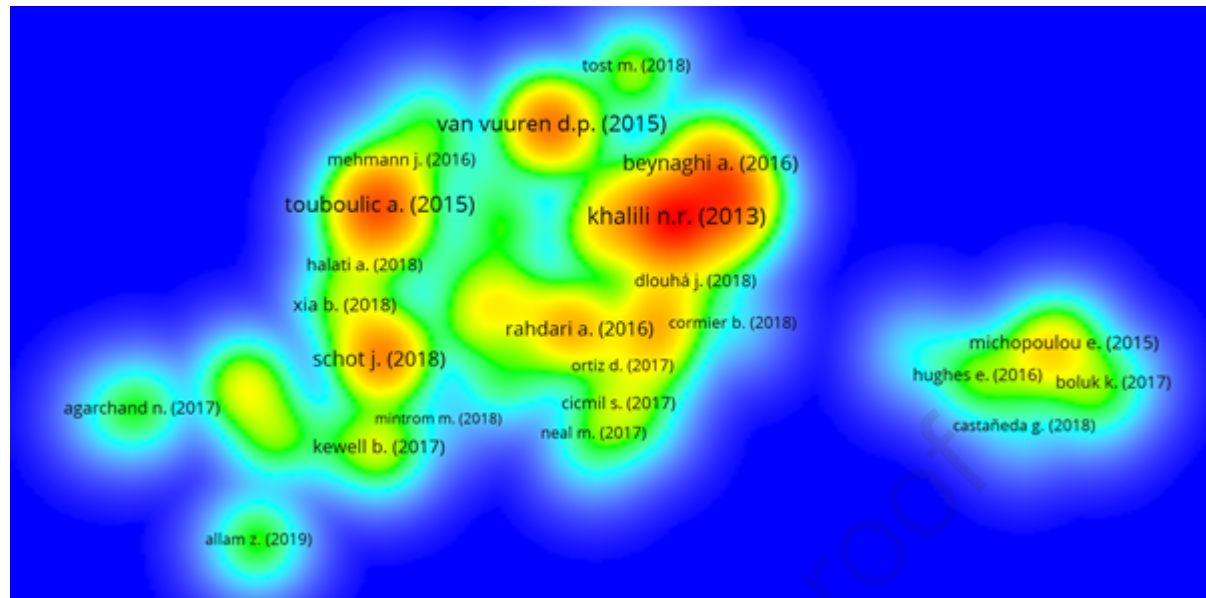
Journal Pre-proof

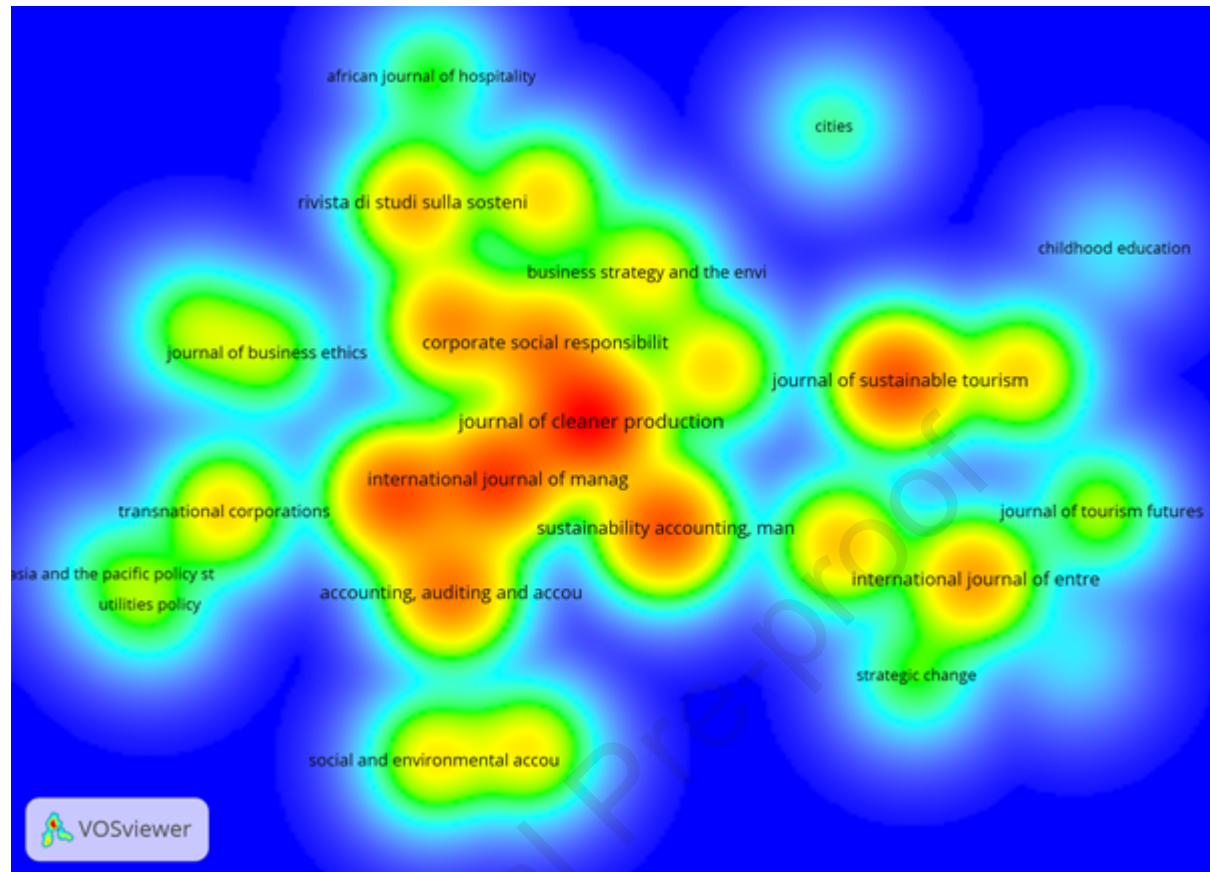


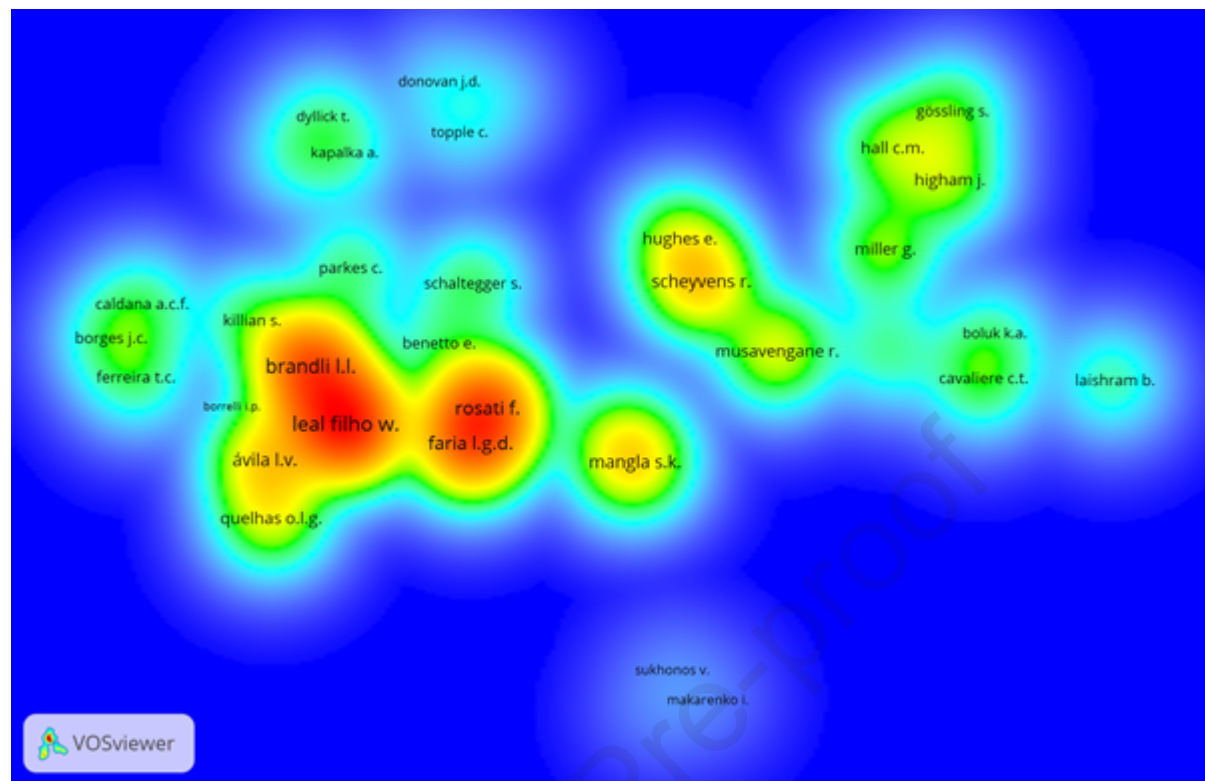


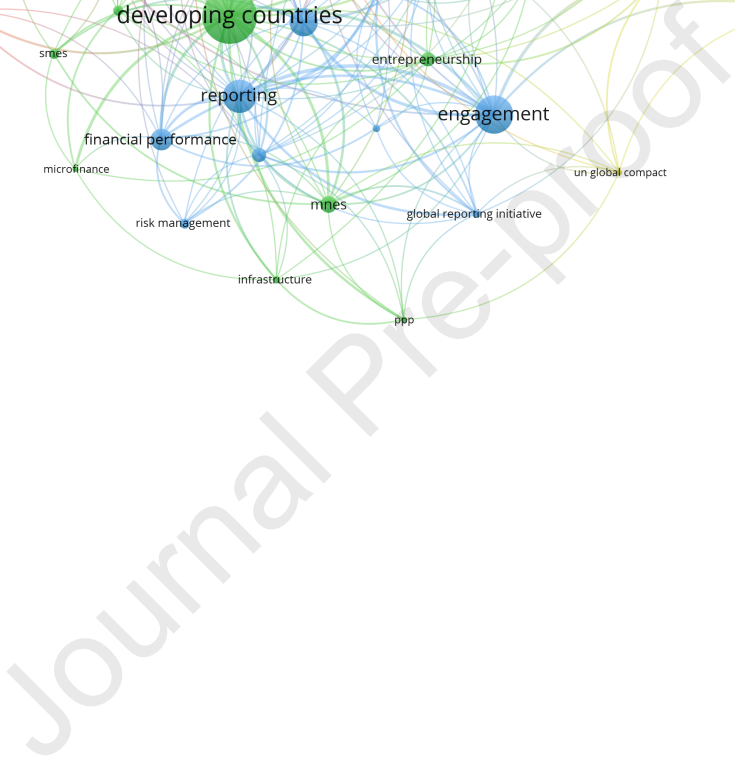












Declaration of interests

☒ The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

☐ The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: